# FY 2018 CAPACITY DEVELOPMENT

# ANNUAL REPORT TO EPA

## July 2017 to June 2018

NEW HAMPSHIRE

October 4, 2018


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NHDES

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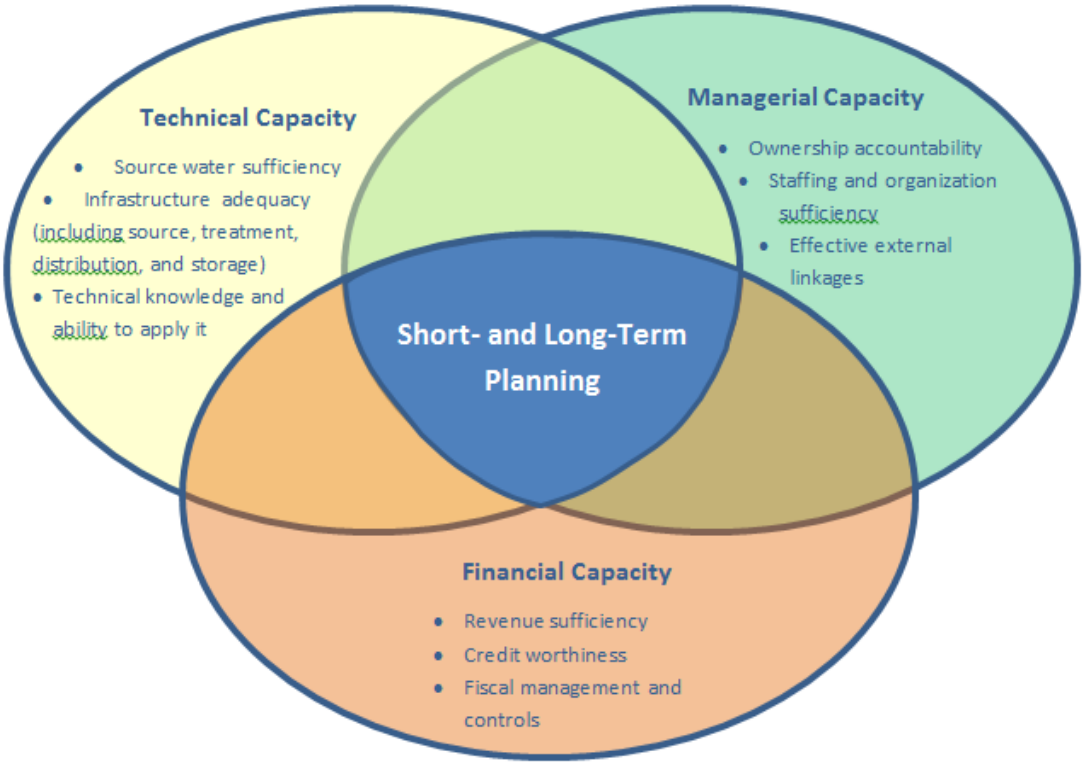
# I. INTRODUCTION

## 1. BACKGROUND

Under the 1996 Amendments to the Safe Drinking Water Act (SDWA), Section 1420(c), each state must develop, implement, measure and report on their "capacity assurance" efforts to ensure that all new and existing public water systems (PWS) have adequate technical, managerial and financial means to provide clean, safe and reliable drinking water to their customers. States failing to comply with these requirements are subject to withholding up to 20%of their Drinking Water State Revolving Loan Fund (DWSRF) allotment.

**Figure 1 – Small Water System Challenges**



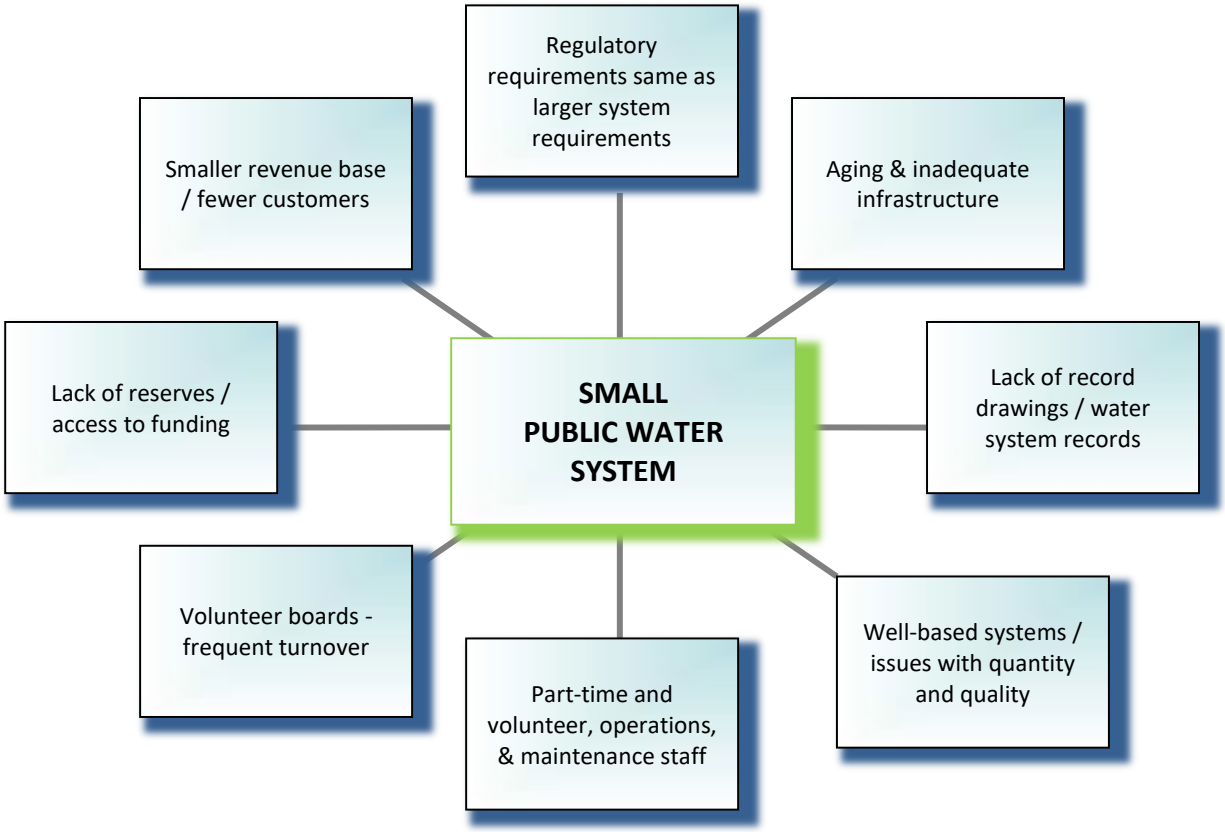

**Technical** - The physical and operational ability of a water system to meet SDWA requirements, including the adequacy of its source water, physical infrastructure, technical knowledge and capability of operating personnel.

**Managerial** - The ability of a water system to conduct its affairs in such a manner to achieve and maintain compliance with SDWA requirements, including the system's institutional and administrative capabilities.

**Financial** - The water system's ability to acquire and manage sufficient financial resources to achieve and maintain compliance with SDWA.

This report is structured in accordance with the reporting criteria required by EPA. Section II describes water system compliance issues or capacity development "needs"; Section III describes activities to ensure adequate capacity of ***new*** public water systems, and Section IV summarizes activities to improve the capacity development of ***existing*** systems.

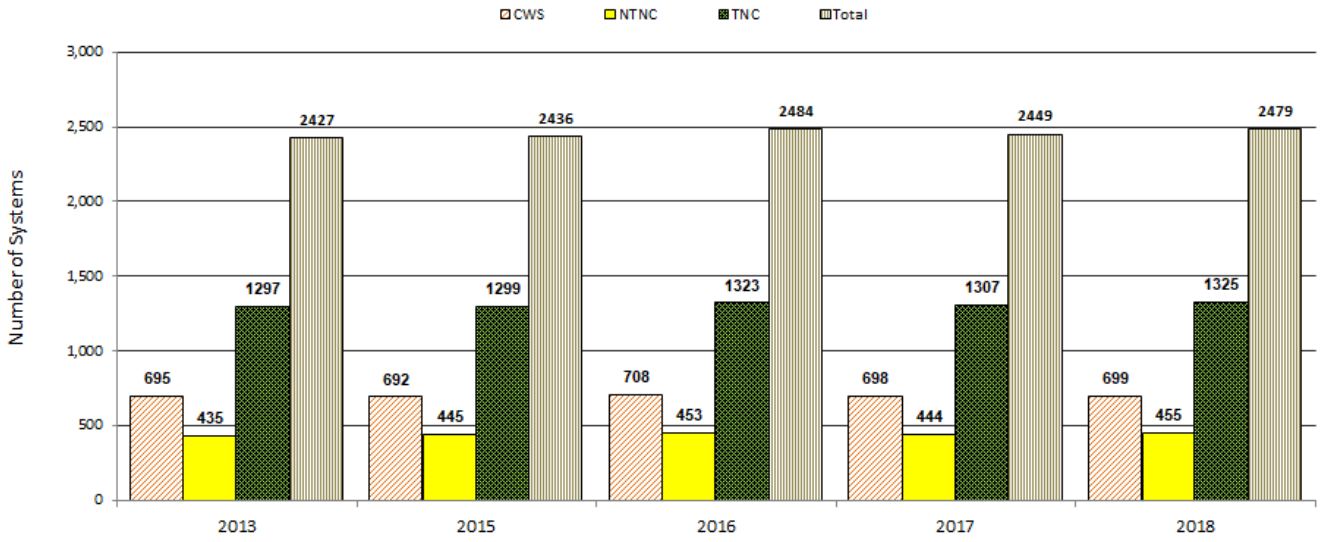
The goal of capacity assurance is to improve the long-term sustainability and rate of compliance of community public water systems (CWS) and non-transient non-community (NTNC) public water systems. New Hampshire's program is administered through the state's Department of Environmental Services Drinking Water & Groundwater Bureau (DWGB). New Hampshire focuses our capacity development efforts on the very small water systems (<250 service population), because these systems exhibit a multitude of hardships to manage and maintain water system compliance (Figure 1), have a limited rate base, and incur the highest number of violations both for health-based parameters and for monitoring and reporting requirements.




## 2. PROFILE OF NEW HAMPSHIRE PUBLIC WATER SYSTEMS

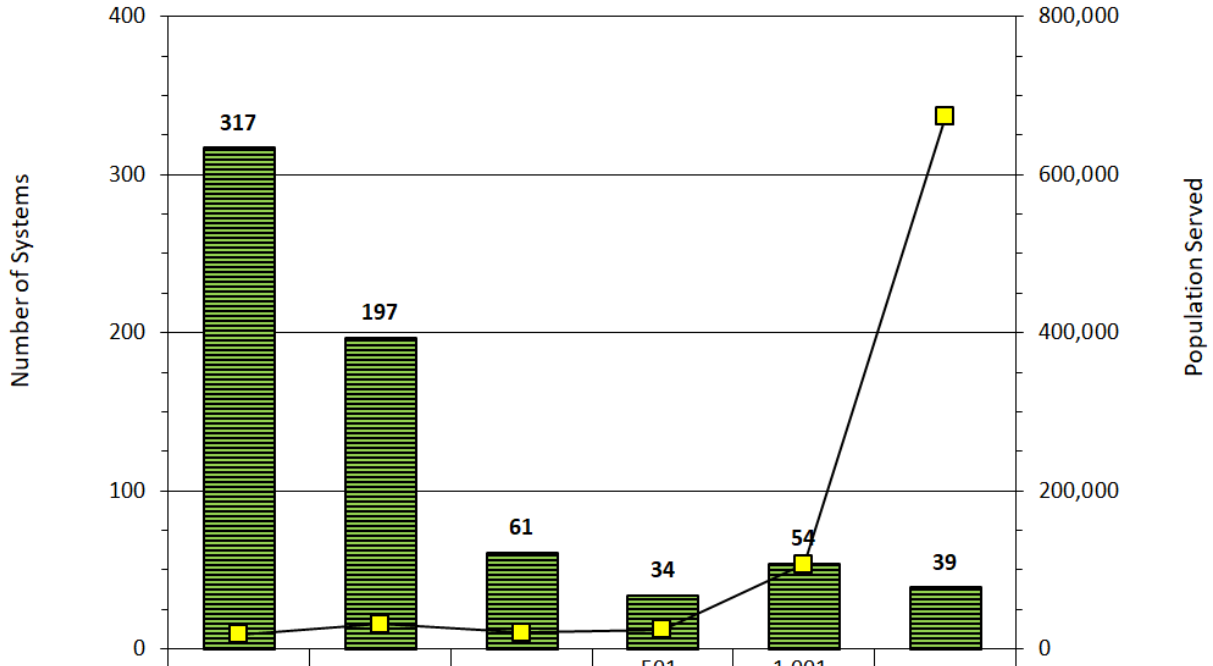
In Calendar year 2017, New Hampshire's approximately 2,500 public water systems consisted of about half (47%) non-transient systems, serving residential communities, schools and businesses. The remaining 53% serve transient populations such as hotels, restaurants and campgrounds (Figure 2). It is also important to note that only **54%** of the state's residential population is served **by public water systems**; with the balance **46%** served by **private wells**.

**Figure 2 - Active Public Water Systems in NH**
**(by previous calendar year)**




Further breakdown of New Hampshire's public water system inventory shows that **73%** of our residential *community* water *systems* serve 250 people or less, representing about **6%** of the community water system *populations* served (Figure 3). This bracket has the highest rate of non-compliance, underscoring the need to target capacity assistance efforts to this system size.

**Figure 3 - Community Water Systems**
**by Population Served in Calendar Year 2017**



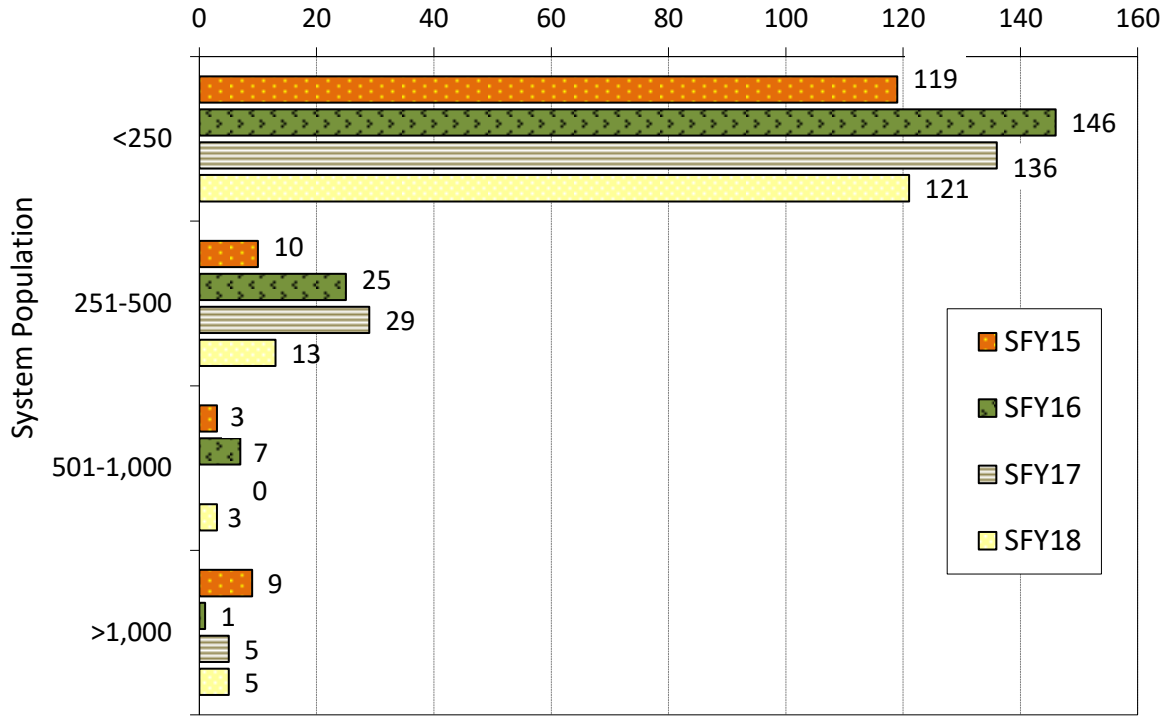

| System Population | 25 - 100 | 101 - 250 | 251 - 500 | 501 - 1,000 | 1,001 - 3,300 | 3,301+ |
|---|---|---|---|---|---|---|
| #Systems | 317 | 197 | 61 | 34 | 54 | 39 |
| Population Served | 18,442 | 31,577 | 20,767 | 24,402 | 106,738 | 673,633 |

## II. STATEWIDE CAPACITY NEEDS IDENTIFIED THIS PERIOD

### 1. VIOLATIONS FOR MONITORING AND REPORTING

Monitoring and reporting violations include failure to conduct the following actions: submit samples on time; sample for or report bacteria results under the Revised Total Coliform Rule (RTCR); perform public notice; submit Consumer Confidence Reports; provide Lead Education; and other "paper" violations. As shown in Figure 4, the *number* of violations issued to systems serving up to 250 persons is about four times higher than those issued for all other system sizes, due to the predominance of very small systems in the state. The number of violations per system is also the highest for systems serving up to 500 people (21% to 24%), compared to the larger systems with only 5% to 8% receiving violations. More violations occurred in SFY16 due to the state's early adoption of the RTCR and the additional monitoring and reporting especially for Seasonal Systems. Data show that transient systems incur over 10 times as many violations as non-transient systems for the following violations: failure to collect routine samples; failure either to provide results to the state; failure to notify the state that a monitoring violation happened; and failure to collect triggered monitoring samples.

**Figure 4 - Non-Transient Systems Monitoring and Reporting (M/R) State and Federal Violations by Population**
(by State Fiscal Year [July - June])

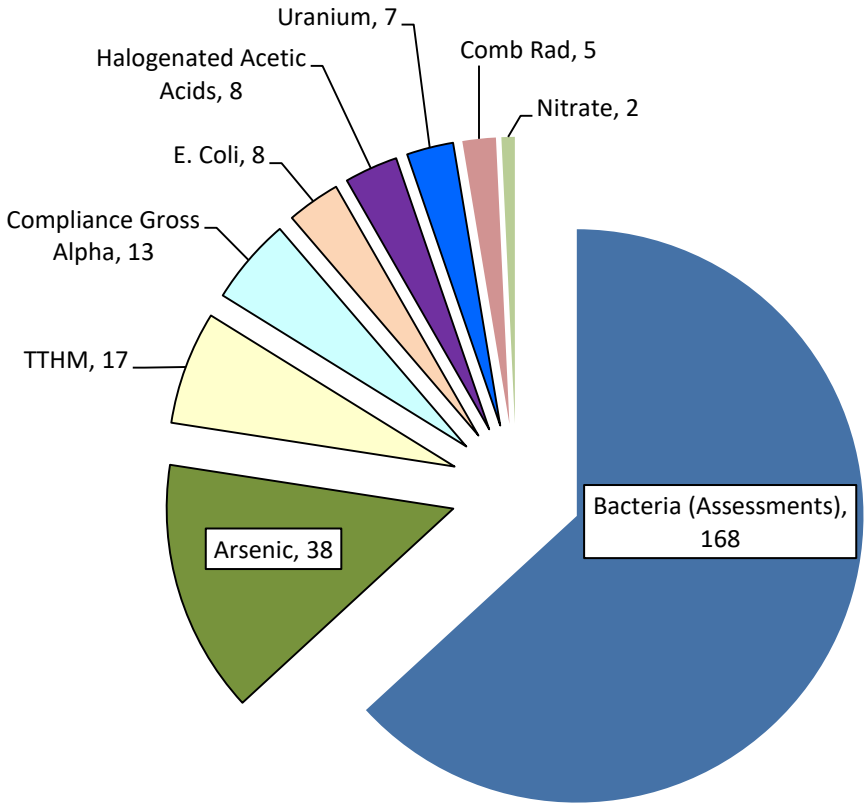



### 2. VIOLATIONS FOR WATER QUALITY

Violations are issued for exceedances of health-based, maximum contaminant levels (MCLs) for *E. coli* bacteria, chemical parameters and radionuclides. A breakdown per contaminant for the past

state fiscal year (Figure 5, following page) shows that Bacteria and Arsenic continue to be the focus of outreach and assistance. Systems with populations of 25 to 250 incurred 73% of the water quality violations in SFY 2018.

**Figure 5 - Chemical MCL Violations and Bacteria-based Assessments for Non-Transient Systems**
(SFY 2018, Total = 266)



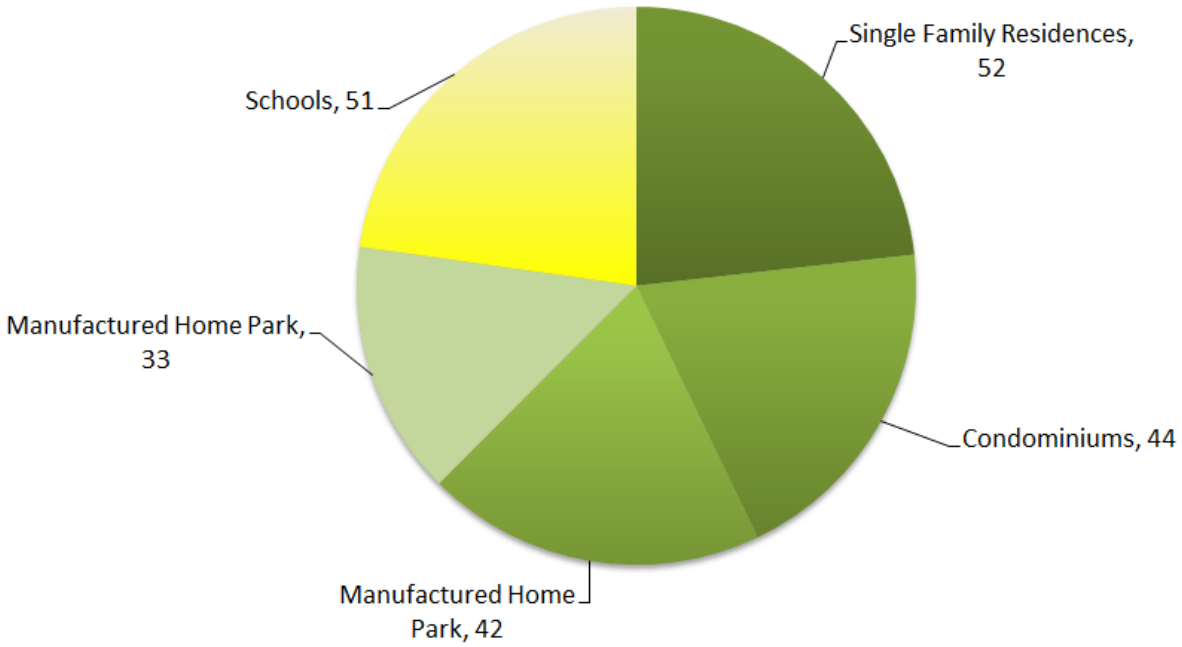

## 3. Non-Transient System Categories with Most federal Violations

The top five categories of small systems incurring federal violations in 2018 (Figure 6, following page) were fairly evenly divided. Single-family residences and schools were the most frequent violators, with different violation profiles. Top school violations were: failure to report results for routine samples, failure to collect routine samples, and failure to sample for disinfection byproducts. For residences, violations by apartments differed from condominiums, single family residences, and manufactured homes, likely due to type of management (apartments are managed by landlords, while the others are typically managed by an association of owners). Apartment top violations were failure to report results for routine bacteria samples and failure to submit public notice, while top violations for the remaining community categories were: sample average MCL exceedance (arsenic violations accounted for almost half the violations, and radiological parameters the rest), failure to sample for disinfection byproducts, and failure to

monitor or report for non-bacteria parameters. For transient systems (not shown), campgrounds and restaurants incurred far more violations than other categories. This information will be used to focus future outreach.

**Figure 6 - System Categories Incurring Most Violations**

**Federal violations by non-transient systems (25-1,000 persons), SFY 2018)**




## 4. Deficiencies Noted from Onsite Inspections and Assessments

New Hampshire has defined 51 significant deficiencies within the eight inspection elements of a water system, 35 of which were cited in SFY 2018 to non-transient systems during 321 sanitary surveys, boil order site visits, and Level 1 and Level 2 assessments. The top five significant deficiencies (based on numbers cited) were: well cap/cover sanitary seal problems (39), missing sample tap (19), storage tank subject to contamination (19), various distribution system deficiencies (primarily leaks, 19), and inoperative treatment (18).

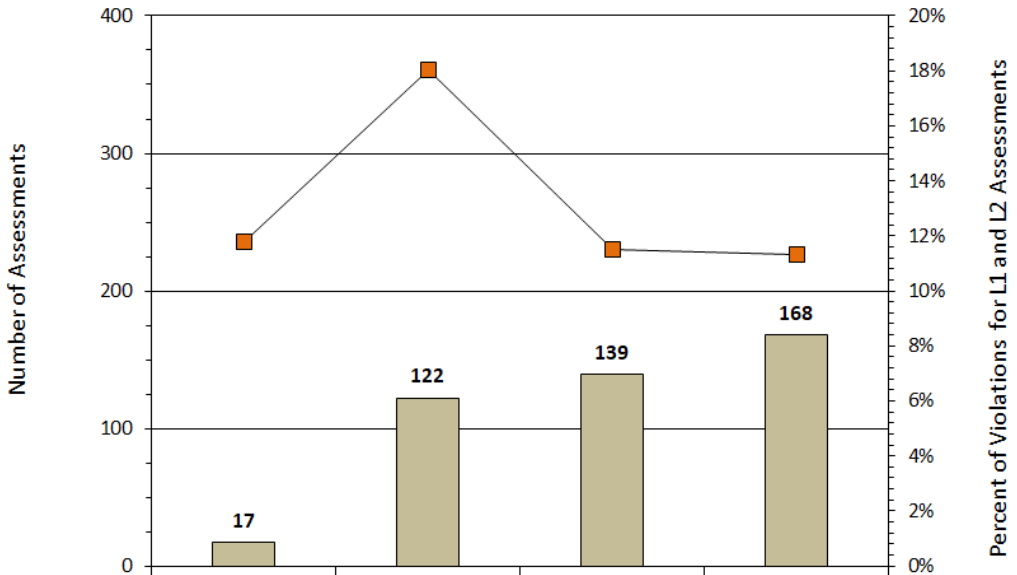
New Hampshire reinforced its outreach and enforcement along with its early implementation of the RTCR in 2015, which eliminated bacteria MCLs and introduced the requirement to perform system-wide self-assessments to identify and rectify the causes of bacterial presence. As shown earlier on Figure 5, the annual number of assessments is significantly higher than the total annual number of MCL violations for all chemical parameters combined.

Approximately 145 assessments are triggered each year in non-transient systems (Figure 7). Typically about 2/3 are due to Total Coliform, while the remaining 1/3 are due to either late sampling or failure to collect repeat samples. Letters are sent following the first total coliform event to better address the sampling requirements and possibly avoid repeated assessments. The number of bacteria assessments has increased, slowly approaching the 201 to 236 annual MCL violations occurring in the five years before the RTCR was implemented (Figure 7).

New Hampshire's enforcement process starts with issuance of a state-only Notice of Violation (NOVs) when systems fail to correct a sanitary survey deficiency within the required timeframe, which is generally set at 30 days. If the system still fails to correct the deficiency after receipt of the NOV, the next level of enforcement is a Letter of Deficiency (LOD). Depending on the type of deficiency and the length of time to correct, the water system may also incur a federal violation and requirement for Public Notice.

The violation rate for incomplete, inadequate, or missing assessments has dropped to approximately 11% since SFY 2016 (the second year of implementation of the RTCR), when New Hampshire started providing additional technical assistance to address the causes of coliform in systems experiencing repeated assessments.

**Figure 7 - Level 1 and 2 Assessments and Assessment Violation Rates**
(for Non-Transient Systems per SFY)




| | SFY 2015 | SFY 2016 | SFY 2017 | SFY 2018 |
|---|---|---|---|---|
| Number of L1 & L2 Assessments | 17 | 122 | 139 | 168 |
| Percent Assessment Violations | 12% | 18% | 12% | 11% |

## 5. Identification and Prioritization of Systems in Need of Assistance

Small systems in need of targeted, one-on-one technical assistance through the Capacity Development Program are identified through regular interactions including sanitary surveys, referrals from contract operators, customer complaints, grant and loan application lists, boil order assessments, repeated assessments, bulk water deliveries, enforcement lists and database queries for accumulated violations. A rolling capacity development "priority list" is maintained wherein each system is assigned a lead "Technical Assistance" contact from the bureau, to identify root causes and solutions with the system representatives and consultants. In SFY 2018, staff provided *extended one-on-one, in-person* capacity development assistance to 20 non-compliant systems and additional, extended, one-on-one capacity development

assistance via office communications to 81 systems, for a total of **101 capacity development events**. Of these, 31 resolved their deficiencies in SFY 2018, and 19 remain open. Six of the 19 active capacity systems have applied for funding from the Drinking Water State Revolving Loan Fund (DWSRF).

Technical Assistance and parallel enforcement interactions with systems on the priority list (and others) are documented in water system files. Capacity development efforts often require several months to years to address the core causes of non-compliance. Assistance efforts typically include site visits and meetings, email and phone interactions, coordination with national and state TA partners, and funding assistance via grants and/or the DWSRF. This assistance lowers the number of violations, which focuses enforcement on the least responsive violators.

## *III. CAPACITY ASSURANCE FOR NEW SYSTEMS*

From their inception, new public water systems must be designed to support adequate technical, financial and managerial resources for their long-term sustainability and reliability. This section describes state rules and control points for capacity assurance for new systems.

### 1. DESIGN STANDARDS AND CAPACITY ASSURANCE REGULATIONS

Capacity assurance for new water systems begins with a detailed review of system water sources and infrastructure design in accordance with state regulations. Applicable standards are established in the following Administrative Rules:

- Env-Dw 301 Small Production Wells for Small Community Water Systems.
- Env-Dw 405 Design Standards for Small Community Water Systems.
- Env-Dw 406 Design Standards for Non-community Water Systems.
- Env-Dw 600 Capacity Assurance for Proposed and Existing Public Water Systems.

New Hampshire's main control point for capacity assurance is the water system **Business Plan**. As established by Env-Dw 602 Capacity Assurance for Proposed Public Water Systems, the business plan documents the water system asset inventory, management structure, and financial assets. New Hampshire approved seven new Non-Transient systems in SFY18. None of the new non-transient public water systems have been listed on the Enforcement Targeting Tool (ETT) report.

### 2. CAPACITY ASSURANCE FOR NEW SYSTEM STARTUP

Capacity assurance for new system startup is accomplished through a comprehensive startup Sanitary Survey and issuance of an informative "welcome packet" to new system owners. Additional outreach is provided for startup of new or reactivated *transient* systems by performing one-on-one meetings with new system owners at the time of system registration, as these are not required to hire a certified water operator in New Hampshire. Outreach to new owners this fiscal year included site visits to 12 systems, mailing of "New Owner Binders" to an additional 18 new owners, and additional outreach via office-based communications.

## *IV. CAPACITY ASSURANCE ACTIVITIES FOR EXISTING PWS*

This section describes the different assistance programs administered by the DWGB to improve the managerial, financial and technical capacity of **existing** PWS. Activities include general and targeted outreach, grants and loans, and one-on-one site visits and capacity meetings for technical assistance.

### 1. SOURCE WATER PROTECTION & EMERGENCY PREPAREDNESS ASSISTANCE

DWGB programs include regular outreach activities for source water protection and emergency preparedness assistance to community public water systems, especially municipalities and districts. Highlights for the past fiscal year included:

- Provided presentations on the New Hampshire Public Works Mutual Aid program.
- Conducted three workshops to train land use planners in source water protection.
- Trained 219 water supply, municipal, non-governmental staff and consultants regarding how to apply surface and groundwater protections during the annual Local Source Water Protection Conference.
- Participated with municipal and public water system staff in the development of a "geographic response plan" for a critical reach of the Merrimack River to coordinate local response(s) to a chemical or oil spill into the river.

### 2. GRANTS, LOANS AND ASSET MANAGEMENT

DWGB administers various funding programs to provide financial assistance and incentives for PWS infrastructure improvements and sustainability. Highlights for this reporting period include:

- Award of **$11.4 million** from the **Drinking Water State Revolving Loan Fund (DWSRF)** for infrastructure project loans in 2017, for systems serving a population of up to 500 (Table 1 on following page).
- Award of **10 Local Source Water Protection grants** for source security and other source protection projects.
- Award of **16 Asset Management grants** totaling $268,750 to assist communities with the development and/or the implementation of an asset management program. Since 2013 a total sum of approximately $1,079,310 in grants were awarded to 55 communities (Figure 9, following page and Table 2 on page 11).
- The fourth Annual **Asset Management Awareness Workshops** had 110 participants.

**Table 1 –DWSRF 2017 Loan Commitments to Systems Serving <500 people**

| PWS ID | PWS Name | Town | Project Description | Loan Amount | Population | Projected Forgiveness |
|---|---|---|---|---|---|---|
| 0612210 | Old Coach Village | Derry | Pump House Replacement | $150,000 | 50 | 0% |
| 0613050 | Frost Residents Coop, Inc. | Derry | Water Main Replacement and System Improvements | $852,760 | 49 | 11% |
| 1211010 | Jackson Water Precinct | Jackson | Route 16 Water Main Extension | $688,900 | 500 | 0% |
| 1932110 | Bryant Brook Condo Association | Plaistow | Pump House and Source Water Upgrades | $240,000 | 55 | 11% |
| 2194010 | Coos County Farm | Stewarts -town | Interconnection with West Stewartstown Water Precinct | $900,000 | 228 | 15% |

**Figure 8 – Asset Management Grants Awarded in CY 2018**

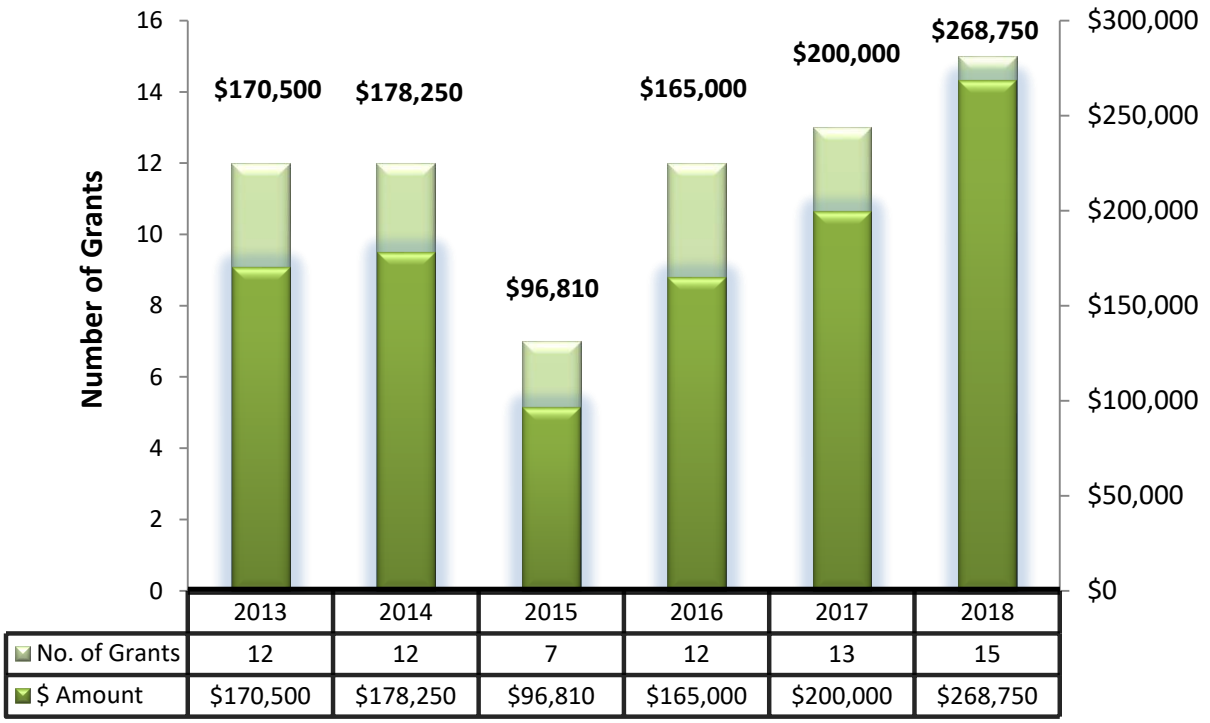


**Table 2 – Asset Management Grant Awards 2018**

| SYSTEMS | TOWN NAME | GRANT AMOUNT |
|---|---|---|
| Antrim Sewer and Water | ANTRIM | $20,000 |
| Bennington Water System | BENNINGTON | $20,000 |
| Plymouth Village Water and Sewer District | PYLMOUTH | $20,000 |
| Town of Newport | NEWPORT | $20,000 |
| Town of Enfield | ENFIELD | $16,500 |
| Rollinsford Water & Sewer | ROLLINSFORD | $20,000 |
| Penacook and Boscawen Water Precinct | BOSCAWEN | $20,000 |
| City of Claremont | CLAREMONT | $20,000 |
| Sullivan County Complex | UNITY | $18,000 |
| Town of Lisbon | LISBON | $12,000 |
| City of Franklin | FRANKLIN | $17,500 |
| Ashland Water & Sewer | ASHLAND | $20,000 |
| Town of Winchester | WINCHESTER | $15,000 |
| Emerald Acres COOP | BARRINGTON | $10,000 |
| Town of Sunapee | SUNAPEE | $20,000 |
| | **Subtotal** | **$268,750** |
| | Grants awarded through CY 2018 | $810,560 |
| | **Total Amount Awarded to Date:** | **$1,079,310** |

## 3. Operator Certification Training and Outreach

The New Hampshire Operator Certification program supports numerous outreach and training activities for water system operators, owners and managers. In the past fiscal year, activities included:

- Contracting with the New Hampshire Water Works Association (NHWWA) for two Small Public Water System Operator Grade IA courses (fall and spring), two Basic Math courses, and two Operator Exam Review sessions.
- Contracting with the New England Water Works Association (NEWWA) (an approved IACET training provider) for 20 instructor-led training sessions in New Hampshire specifically targeted for New Hampshire water works operators.
- Coordination with NHWWA to provide six Operator Roundtables throughout the state. These are operator-driven roundtable discussions, which allow industry professionals to relay challenges confronting them and their professions. These forums also allow operators to ask questions of state officials and for the state to discuss anticipated and new regulations.
- Participation on the New England Water Works Operator Certification Committee. This is a regional committee comprised of New England state operator certification officers, EPA

representatives and professional water works operators. The committee promotes water works operator certification and initiatives to grow and strengthen the profession.
- Participation in other statewide industry trade shows and training seminars throughout the year with the New Hampshire Water Well Association, New England Water Well Association, Granite State Rural Water Association and other training partners.

**Table 3 –Operator Certification Activities**

| | CY 2014 | CY 2015 | CY 2016 | CY2017 |
|---|---|---|---|---|
| Active Certifications | 1011 | 969 | 1035 | 972 |
| Exams Administered | 204 | 151 | 197 | 216 |

## 4. Leak Detection Surveys

Leak detection and repair play a fundamental role in reducing water loss and energy costs related to the treatment and delivery of drinking water. In CY2017, the professional leak detection firm hired through DWSRF set-asides completed surveys for 42 community water systems, spanning 505 miles of pipe. Fifty leaks were discovered, totaling approximately 331 gallons per minute. This equates to roughly 174 million gallons per year, equivalent to 4,766 people using 100 gallons of water per day for a year.

In CY2018, SRF set-asides are funding leak detection surveys at 34 community water systems, spanning approximately 732 miles of pipe.

## 5. Water Conservation Outreach

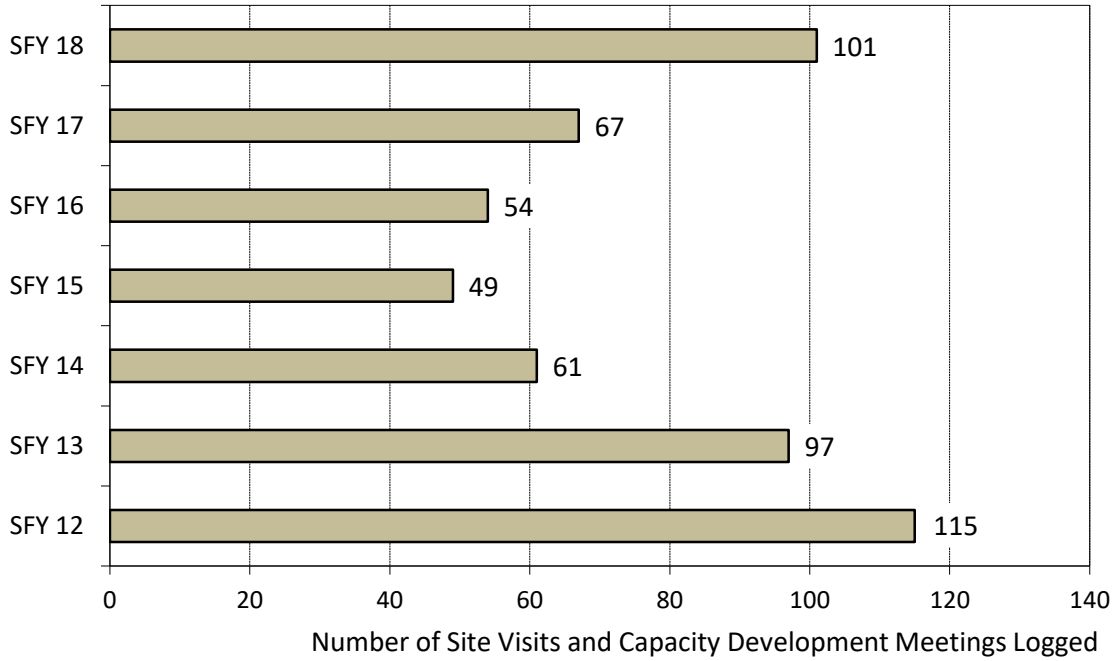
Promoting water conservation through outreach activities helps communicate the importance of reducing water loss and waste - especially as water and energy resources become increasingly limited. In SFY 2018, NHDES employees supported by DWSRF set-asides gave presentations or provided outreach at four events to promote water efficiency and support the sustainable use of water. Audiences included municipal leaders, elementary school students, state employees and the general public.

## 6. One-on-One Technical Assistance Site Visits and Capacity Meetings

DWGB technical staff provides ongoing technical assistance (TA) to small water systems to assist with source capacity issues, bacteria troubleshooting and financial and managerial planning. TA site visits and meetings attended by DWGB staff for SFY12 to SFY18 are shown in Figure 9. These site visits are *in addition* to standard sanitary surveys, permitting inspections, 41 SRF inspections in SFY 2018, and other special investigations performed by DWGB technical staff. As discussed in Section 1, this past fiscal year included 12 site visits with new transient system owners to review a customized binder (with sampling schedule and forms, instructions for using the PWS online portal “OneStop,” and guidance on proper sampling procedures) and discuss their responsibilities as a PWS.

Further one-on one technical assistance to four small systems for business plans resulted in improvements in tracking water system expenses and attention to water rates for responsible fiscal planning.

**Figure 9 - Technical Assistance Visits & Meetings by DWGB Staff**




## V. STATEWIDE REVIEW OF IMPLEMENTATION PROGRESS

Review of the capacity program implementation progress consists of biweekly meetings by the lead TA contacts, quarterly measures tracking through the statewide Measures Tracking and Reporting System (MTRS), annual reports to EPA, and a triennial report to the Governor.

## VI. IMPROVEMENTS TO CAPACITY DEVELOPMENT STRATEGY

For SFY19, New Hampshire will continue to build and enhance its capacity development strategies for existing systems, including:

- Continued and new matching grants for small systems serving <500 people for development of Record Drawings and performing Tank Inspections.
- Continued requirement for water system Business Plans for asset management planning for systems serving <500 population, that have also received a grant or loan from the Drinking Water State Revolving Loan Fund.
- Continued one-on-one outreach and assistance to non-compliant systems and those lacking general capacity assurance.
- Continued collaboration with local and national TA providers including Granite State Rural Water Association, RCAP Solutions, Environmental Finance Center Network, New England Water Works and NH Water Works Association.